881783 Kelley No. 2

THE FOREIGN SERVICE

OF THE

UNITED STATES OF AMERICA

COPY

AMERICAN EMBASSY
Casilla 27-D
Santiago, Chile
April 3, 1943

No. 2

Dr. E. W. Brandes, Chief,
Office of Rubber Plants and Investigation,
Bureau of Plant Industry Station,
Beltsville, Maryland.

Dear Sir:

I take pleasure in enclosing a copy of the second progress report on experimental nursery plantings of guayule seed in Chile.

As will be noted from the enclosed report, the total number of hectares comprising this experiment is only about one-half of the total number originally planned for. This decrease has resulted principally from a shortage of trained labor and supervisory staff, owing to the lack of sufficient local financial support.

Very truly yours,

(s) Arnold White

F. Arnold White
Agent (Assistant Agronomist)

Enclosure:
1. Progress report on guayule planting in Chile
cc. Dr. H. H. Barlett

Note: Prog. Report #1 concerned Koh Saghyz only.

THE FOREIGN SERVICE

OF THE

UNITED STATES OF AMERICA

COPY

AMERICAN EMBASSY
Castilla 27-D
Santiago, Chile
April 3, 1943

Dr. H. W. Brandes, Chief,
Office of Rubber Plants and Investigation,
Bureau of Plant Industry Station,
Beltsville, Maryland.

Dear Sir:

I take pleasure in enclosing a copy of the second progress report on experimental nursery plantings of guayule seed in Chile.

As will be noted from the enclosed report, the total number of hectares comprising this experiment is only about one-half of the total number originally planned for. This decrease has resulted principally from a shortage of trained labor and supervisory staff, owing to the lack of sufficient local financial support.

Very truly yours,

(s) Arnold White

F. Arnold White
Agent (Assistant Agronomist)

Enclosure:
1. Progress report on guayule planting in Chile
cc. Dr. H. H. Bartlett

Note: Prog. Report #1 censored
Non Secrets only.

GUAYULE NURSERIES IN CHILE

The sowing of guayule seeds in nurseries in Chile for the agricultural year of 1942/43 was discontinued on February 20, 1943, after completing a total of approximately 6 hectares. Early fall rains and cool weather, coupled with a shortage of labor due to the lack of sufficient funds, altered the original plan to establish plots in Chile totaling 12 hectares.

An official estimate completed on March 30 indicates that the total number of plants in the two nurseries is around 350,000. Of these 350,000 plants there are approximately 100,000 that are large enough to be transplanted at this time. Approximately 50,000 plants are expected to flower [illegible] of April. Any estimate at this time on the total seed production this year from these 5 months old plants is rather difficult in view of the lack of previous experience with this plant in Chile.

PROGRESS REPORT

No. 2

GUAYULE NURSERY CULTURE IN CHILE

Technical obstacles, e.g. cultural practices, climate, soil, etc., of guayule nursery culture in Chile have been satisfactorily met. A method (1) for guayule nursery culture in Chile has been proven, which if followed correctly will give satisfactory results at a lower cost than was realized this year in both labor and seed. The low production of plants this year has been due chiefly to controlable factors, such as late planting and the difficulty of getting the laborers to follow instructions in the absence of a supervisor who could be present at all times.

The chief obstacle to the program has been the declining interest on the part of the Chilean cooperators, which has occurred in spite of an increasing interest in the possibilities of the plant among agriculturists. This decline is due largely to the influence of one man (President of the Corporacion de Fomento) who, after visiting synthetic rubber [illegible] United States is convinced [illegible] demand for guayule [illegible] long enough for the crop to be of commercial importance five years hence. The Chilean Department of Genetics (cooperators in the program) are dependant upon this Corporation for financial assistance and, although the officials of the Corporation are convinced that guayule can be grown in Chile, they are hesitant to invest a sum of money large enough to satisfy the financial demands of the program. This lack of financial assistance from the Corporation has placed the entire responsibility of technical and supervisional work on the shoulders of one man (2), which, especially in supervisional work and with inadequate means of transportation, has been impossible to carry out at its fullest efficiency.

By: F. A. White
Agent (Assistant Agronomist)

April 3, 1943

(1) Progress report on Guayule nursery culture in Chile; F.A.White. February 8, 1943.
(2) U.S.D.A. representative; F.A.White, Agent (Assistant Agronomist)

PROGRESS REPORT

No. 2

GUAYULE NURSERY CULTURE IN CHILE

By: E. A. White
Agent (Assistant Agronomist)

April 3, 1943

GUAYULE NURSERIES IN CHILE

The sowing of guayule seeds in nurseries in Chile for the agricultural year of 1942/43 was discontinued on February 20, 1943, after completing a total of approximately 6 hectares. Early fall rains and cool weather, coupled with a shortage of labor due to the lack of sufficient funds, altered the original plan to establish plots in Chile totaling 12 hectares.

An official estimate completed on March 30 indicates that the total number of plants in the two nurseries is around 350,000. Of these 350,000 plants there are approximately 100,000 that are large enough to be transplanted at this time. Approximately 50,000 plants are expected to flower during the month of April. Any estimate at this time on the total seed production this year from these 5 months old plants is rather difficult in view of the lack of previous experience with this plant in Chile.

Technical obstacles, e.g. cultural practices, climate, soil, etc,. of guayule nursery culture in Chile have been satisfactorily met. A method[1] for guayule nursery culture in Chile has been proven, which if followed correctly will give satisfactory results at a lower cost than was realized this year in both labor and seed. The low production of plants this year has been due chiefly to controlable factors, such as late planting and the difficulty of getting the laborers to follow instructions in the absence of a supervisor who could be present at all times.

The chief obstacle to the program has been the declining interest on the part of the Chilean cooperators, which has occurred in spite of an increasing interest in the possibilities of the plant among agriculturists. This decline is due largely to the influence of one man (President of the Corporacion de Fomento) who, after visiting synthetic rubber plants in the United States is convinced that the demand for guayule rubber will not endure long enough for the crop to be of commercial importance five years hence. The Chilean Department of Genetics (cooperators in the program) are dependent upon this Cooperation for financial assistance and, although the officials of the Corporation are convinced that guayule can be grown in Chile, they are hesitant to invest a sum of money large enough to satisfy the financial demands of the program. This lack of financial assistance from the Corporation has placed the entire responsibility of technical and supervisional work on the shoulders of one man[2] which, especially in supervisional work and with inadequate means of transportation, has been impossible to carry out at its fullest efficiency.

(1) Progress report on Guayule nursery culture in Chile; F.A.White. February 9, 1943.
(2) U.S.D.A. representative; F.A.White, Agent (Assistant Agronomist)

GUAYULE NURSERIES IN CHILE

The sowing of guayule seeds in nurseries in Chile for the agricultural year of 1942/43 was discontinued on February 20, 1943, after completing a total of approximately 6 hectares. Early fall rains and cool weather, coupled with a shortage of labor due to the lack of sufficient funds, altered the original plan to establish plots in Chile totaling 12 hectares.

An official estimate completed on March 30 indicates that the total number of plants in the two nurseries is around 380,000. Of these 380,000 plants there are approximately 100,000 that are large enough to be transplanted at this time. Approximately 80,000 plants are expected to flower during the month of April. Any estimate at this time on the total seed production this year from these 5 months old plants is rather difficult in view of the lack of previous experience with this plant in Chile.

Technical obstacles, e.g. cultural practices, climate, soil, etc., of guayule nursery culture in Chile have been satisfactorily met. A method(1) for guayule nursery culture in Chile has been proven, which if followed correctly will give satisfactory results at a lower cost than was realized this year in both labor and seed. The low production of plants this year has been due chiefly to controllable factors, such as late planting and the difficulty of getting the laborers to follow instructions in the absence of a supervisor who could be present at all times.

The chief obstacle to the program has been the declining interest on the part of the Chilean cooperators, which has occurred in spite of an increasing interest in the possibilities of the plant among agriculturists. This decline is due largely to the influence of one man (President of the Corporacion de Fomento) who, after visiting synthetic rubber plants in the United States is convinced that the demand for guayule rubber will not endure long enough for the crop to be of commercial importance five years hence. The Chilean Department of Genetics (cooperators in the program) are dependent upon this Cooperation for financial assistance and, although the officials of the Corporation are convinced that guayule can be grown in Chile, they are hesitant to invest a sum of money large enough to satisfy the financial demands of the program. This lack of financial assistance from the Corporation has placed the entire responsibility of technical and supervisational work on the shoulders of one man(2) which, especially in supervisational work and with inadequate means of transportation, has been impossible to carry out at its fullest efficiency.

(1) Progress report on Guayule nursery culture in Chile; F.A.White. February 9, 1943.

(2) U.S.D.A. representative; F.A.White, Agent (Assistant Agronomist)

The laborer in Chile, although willing to work, assumes no responsibility; therefore, for the program to be economically feasible under these labor conditions the work must be carried out with the assistance of a competent local governmental employee stationed at each plot to constantly supervise the work. This has not been the case, and the reason for it is the lack of sufficient support on the part of the local financiers.

It seems feasible to assume that this problem could be met, in part at least, by arranging a trade agreement between the United States and the Chilean governments which would be of mutual interest. In the absence of such an agreement the Government of Chile is hesitant to recommend extensive plantings without some outlet for the raw material.

Present activities are confined to harvesting of seeds, weeding irrigation, and preparing the beds for winter. To eliminate the loss of a large number of plants incurred by contract workers employed to do the weeding this work has been put on a day basis. Flowering plants are inspected once a week and the mature seeds are harvested by hand. The time interval for irrigating most of the seed beds has been decreased to once a week or less in order to dry them out somewhat before winter. In an attempt to economize on ground space and to decrease the cost of irrigation and weeding, plants in beds with sporadic stands are being concentrated.

To better adapt the plants for future planting on non-irrigated land, and at the same time concentrating on seed production for future nurseries, a plan has been proposed and tentatively agreed to by señor Elgueta, Director of the Department of Genetics in the Chilean Ministry of Agriculture. This plan was proposed to cope with the problem of transplanting young seedlings to non-irrigated land before they had developed a root system sufficiently large to survive under these conditions. It will involve late plantings which have developed slowly due to the early fall, and are not expected to have enough roots by late winter for transplanting to dry soil. At this time the root system of these plants is inadequate to supply them with water during the 5 months summer period without rain.

Plots will be thinned or increased, according to the number of plants in the bed, and transplanted into orderly beds which can be kept under irrigation until the fall of 1944 (May, June, July).

The laborer in Chile, although willing to work, assumes no responsibility; therefore, for the program to be economically feasible under these labor conditions the work must be carried out with the assistance of a competent local government employee stationed at each plot to constantly supervise the work. This has not been the case, and the reason for it is the lack of sufficient support on the part of the local financiers.

It seems feasible to assume that this problem could be met, in part at least, by arranging a trade agreement between the United States and the Chilean governments which would be of mutual interest. In the absence of such an agreement the Government of Chile is hesitant to recommend extensive plantings without some outlet for the raw material.

Present activities are confined to harvesting of seeds, weeding irrigation, and preparing the beds for winter. To eliminate the idea of a large number of plants incurred by contract workers employed to do the weeding this work has been put on a day basis. Flowering plants are inspected once a week and the mature seeds are harvested by hand. The time interval for irrigating most of the seed beds has been decreased to once a week or less in order to dry them out somewhat before winter. In an attempt to economize on ground space and to decrease the cost of irrigation and weeding, plants in beds with sporadic stands are being consolidated.

To better adapt the plants for future planting on non-irrigated land, and at the same time concentrating on seed production for future nurseries, a plan has been proposed and tentatively agreed to by Señor Migueles, Director of the Department of Genetics in the Chilean Ministry of Agriculture. This plan was proposed to cope with the problem of transplanting young seedlings to non-irrigated land before they had developed a root system sufficiently large to survive under these conditions. It will involve late plantings which have developed slowly due to the early fall, and are not expected to have enough roots by late winter for transplanting to dry hill. At this time the root system of these plants is increased to supply them with water during the 5 months summer period without rain.

Plots will be thinned or increased, according to the number of plants in the bed, and transplanted into orderly beds which can be kept under irrigation until the fall of 1944 (May, June, July).

COPY

PROGRESS REPORT

No. 3

GUAYULE NURSERY CULTURE IN CHILE

By: F. A. White
Agent (Assistant Agronomist)

May 1, 1943

No. 3

[illegible] CULTURE IN CHINA

[illegible] (Assistant Agronomist)

[illegible] May 1, 1945

3rd PROGRESS REPORT ON THE GUAYULE NURSERIES IN CHILE

Field activities for the month of April have been confined to infrequent irrigations, limited weeding, trial transplanting of young plants to beds with sporadic stands, harvesting of seeds and recovering from a near catastrophe that occurred when a number of dairy cattle overran the nursery at Maipu destroying a large number of plants.

Infrequent irrigations have been applied in the process of preparing the beds for winter. Weeding has been confined to beds more densely populated with guayule, and beds to be maintained in the nursery for seed production in the year 1943-44. Repeated weeding of the beds from which seedlings are soon to be transferred has been discontinued, and it will not be resumed unless the weeds become large enough to endanger the loss of plants through oversight at the time of transfer. In line with the plan to concentrate the seedlings for future seed production, a trial was made to determine the ability of very small plants to withstand the shock of transplanting. The trial proved favorable; however, there are only three workers that will take the necessary precautions to extract the seedlings without breaking the feeder roots, and be certain that the seedling is firmly planted in the soil. In an effort to employ more workers in this operation, a plan to base the worker's pay on the number of plants that live is being tried.

Seed production from the six months old seedlings at the Paine station has been very small. Nevertheless, the plants are gone over each week and mature seeds are harvested by hand.

During the night of April 14, a large number of dairy cattle and oxen (the foreman claimed more than 100) got into the Maipu nursery and destroyed several thousand plants while walking over the beds for 12 hours. A large number of plants (estimated at from 4 to 5 thousand) were destroyed outright, cut off or broken by the hoofs of the cattle. Others were pulled out of the soil by the hoofs of the cattle, with their roots intact. An immediate review of the damage was made and all of the loose plants having feeder roots were immediately replanted. The entire nursery was irrigated as rapidly as possible, following in the row behind the workers replanting. In order to convey some of the difficulties that the U. S. Agent is up against here in Chile, in the absence of technical assistance from the cooperators, I beg to relate the following events. I was in Paine checking the seed harvest on the morning that the cattle were found in the Maipu patch. By chance I returned that afternoon, and as is customary went directly to Maipu, arriving there around 4 p.m. The foreman was employing every available man to put up a fence. He had left the plants without attention. In response to my questions, he told me that he had phoned the head office 4 times that day, the first time at 8:30 a.m., asking for instructions on how to cope with the incident. He requested that someone be sent to check with him on the damages incurred. As there was no man available in the Ministry, the matter had to wait until I arrived. Fortunately, I did not remain in Paine to initiate transplanting trials as I had planned. I made the above recommendations and saw that the work was carried out. Had the plants received water in the morning immediately after the damage was done, I believe that the loss would have been considerably less.

Seed production from the six months old seedlings at the Paine station has been very small. Nevertheless, the plants are gone over each week and mature seeds are harvested by hand.

During the night of April 14, a large number of dairy cattle and oxen (the farmers claimed more than 200) got into the Eelpa nursery and destroyed several thousand plants while walking over the beds for 12 hours. A large number of plants (estimated at from 4 to 5 thousand) were destroyed outright, cut off or broken by the hoofs of the cattle. Others were pulled out of the soil by the hoofs of the cattle, with their roots intact. An immediate census of the damage was made and all of the loose plants having fender roots were immediately replanted. The entire nursery was irrigated as rapidly as possible. Following is an account of the work done replanting. In order to convey some of the difficulties that the U. S. Agent is up against here in Chile, in the absence of technical assistance from the Secretary, I set to relate the following circumstances. I was in Paine expecting the seed laborers to arrive at the nursery that morning that the cattle found in the Eelpa patch. By chance I ventured that afternoon, and as I customary went directly to Melpa, arriving there around 4 p.m. The foreman was employing every available man to put up a fence. He had left the seed selection. In response to my question, he told me that he had planted 4 days, the first time at 8:30 a.m., asking for instructions how to cope with the incident. He requested that someone be sent to check up on the damages incurred. As there was no car available in the Ministry, I had to wait until I arrived. Fortunately, I did not remain in Paine the night but returned immediately after the damage was done. I believe that the late hour of arrival was that the work was carried out. Had the plants replaced water in the morning immediately after the damage was done, I believe that the loss would have been considerably less.

Seed production from the six months old seedlings at the Paine station has been very small. Nevertheless, the plants are gone over each week and mature seeds are harvested by hand.

During the night of April 14, a large number of dairy cattle and oxen (the farmers claimed more than 200) got into the Eelpa nursery and destroyed several thousand plants while walking over the beds for 12 hours. A large number of plants (estimated at from 4 to 5 thousand) were destroyed outright, cut off or broken by the hoofs of the cattle. Others were pulled out of the soil by the hoofs of the cattle, with their roots intact. An immediate census of the damage was made and all of the loose plants having fender roots were immediately replanted. The entire nursery was irrigated as rapidly as possible. Following is an account of the work done replanting. In order to convey some of the difficulties that the U. S. Agent is up against here in Chile, in the absence of technical assistance from the Secretary, I set to relate the following circumstances. I was in Paine expecting the seed laborers to arrive at the nursery that morning that the cattle found in the Eelpa patch. By chance I ventured that afternoon, and as I customary went directly to Melpa, arriving there around 4 p.m. The foreman was employing every available man to put up a fence. He had left the seed selection. In response to my question, he told me that he had planted 4 days, the first time at 8:30 a.m., asking for instructions how to cope with the incident. He requested that someone be sent to check up on the damages incurred. As there was no car available in the Ministry, I had to wait until I arrived. Fortunately, I did not remain in Paine the night but returned immediately after the damage was done. I believe that the late hour of arrival was that the work was carried out. Had the plants replaced water in the morning immediately after the damage was done, I believe that the loss would have been considerably less.

Seed production from the six months old seedlings at the Paine station has been very small. Nevertheless, the plants are gone over each week and mature seeds are harvested by hand.

During the night of April 14, a large number of dairy cattle and oxen (the farmers claimed more than 200) got into the Eelpa nursery and destroyed several thousand plants while walking over the beds for 12 hours. A large number of plants (estimated at from 4 to 5 thousand) were destroyed outright, cut off or broken by the hoofs of the cattle. Others were pulled out of the soil by the hoofs of the cattle, with their roots intact. An immediate census of the damage was made and all of the loose plants having fender roots were immediately replanted. The entire nursery was irrigated as rapidly as possible. Following is an account of the work done replanting. In order to convey some of the difficulties that the U. S. Agent is up against here in Chile, in the absence of technical assistance from the Secretary, I set to relate the following circumstances. I was in Paine expecting the seed laborers to arrive at the nursery that morning that the cattle found in the Eelpa patch. By chance I ventured that afternoon, and as I customary went directly to Melpa, arriving there around 4 p.m. The foreman was employing every available man to put up a fence. He had left the seed selection. In response to my question, he told me that he had planted 4 days, the first time at 8:30 a.m., asking for instructions how to cope with the incident. He requested that someone be sent to check up on the damages incurred. As there was no car available in the Ministry, I had to wait until I arrived. Fortunately, I did not remain in Paine the night but returned immediately after the damage was done. I believe that the late hour of arrival was that the work was carried out. Had the plants replaced water in the morning immediately after the damage was done, I believe that the loss would have been considerably less.

Seed production from the six months old seedlings at the Paine station has been very small. Nevertheless, the plants are gone over each week and mature seeds are harvested by hand.

During the night of April 14, a large number of dairy cattle and oxen (the farmers claimed more than 200) got into the Eelpa nursery and destroyed several thousand plants while walking over the beds for 12 hours. A large number of plants (estimated at from 4 to 5 thousand) were destroyed outright, cut off or broken by the hoofs of the cattle. Others were pulled out of the soil by the hoofs of the cattle, with their roots intact. An immediate census of the damage was made and all of the loose plants having fender roots were immediately replanted. The entire nursery was irrigated as rapidly as possible. Following is an account of the work done replanting. In order to convey some of the difficulties that the U. S. Agent is up against here in Chile, in the absence of technical assistance from the Secretary, I set to relate the following circumstances. I was in Paine expecting the seed laborers to arrive at the nursery that morning that the cattle found in the Eelpa patch. By chance I ventured that afternoon, and as I customary went directly to Melpa, arriving there around 4 p.m. The foreman was employing every available man to put up a fence. He had left the seed selection. In response to my question, he told me that he had planted 4 days, the first time at 8:30 a.m., asking for instructions how to cope with the incident. He requested that someone be sent to check up on the damages incurred. As there was no car available in the Ministry, I had to wait until I arrived. Fortunately, I did not remain in Paine the night but returned immediately after the damage was done. I believe that the late hour of arrival was that the work was carried out. Had the plants replaced water in the morning immediately after the damage was done, I believe that the loss would have been considerably less.

Later inquiries revealed that this misfortunate event occurred when the I.N.S.A. Rubber Factory, in constructing a well around the factory grounds, took down a wire fence which acted as a border to a field of alfalfa. The manager of I.N.S.A. told me after the incident that the owner of the alfalfa had promised not to pasture the land. For that reason, he did not believe it necessary to put a nightwatch to guard the gap left when the fence was removed. The owner, however, without notifying anyone, decided to graze the alfalfa after the 2nd cutting, with the result that the cattle passed freely onto the guayule.

In every variation of the work, or change in the system of work, it has been up to me to teach the laborers and foreman by actually doing the work myself beside each worker until he understood what was expected of him. This required at least a week for each variation, and each new employee had to be trained individually (the turnover in laborers is very high). The foreman is a good worker, but he is not an agronomist and does not realize the importance of the exacting nature of the work which is necessary in this type of experiment.

ACTIVITIES PLANNED FOR THE MONTH OF MAY

Provided sufficient funds are available, and despite the numerous setbacks that the program has encountered up to date, it is quite evident that from the purely scientific standpoint, the experimental trials with guayule plantings in Chile will not have been in vain. There were approximately 120,000 plants left in Maipu after the misfortunate event with the cattle. All of the seedlings (about 5,000) in Paine that are less than 4 inches in height, and cannot be transplanted to field plots at this time because they are too small to withstand the shock, are to be transferred to the Maipu nursery. The ground in Maipu is being furnished to the Ministry by I.N.S.A. Rubber Factory free of rent. This move will free the ground at Paine for other experimental work, and will concentrate future guayule nursery work in one locality. The remainder of the plants at Paine, approximately 50,000, will be used to establish five dry-land field plots, comprising one hectare each. These plots will be carefully selected to represent distinct soil and climate variations in Chile's central region. Transplanting to the field plots is to begin as soon as the weather permits after the first fall rain. The seedlings are to be spaced 1 x 1 meter in these plots.

The addition to the field work outlined above, Sr. Manuel Elgueta, Director of the Department of Genetics, has requested an economic report on the project up to date, and an estimate of unit cost for future operations. This report will treat the cost of each operation, excluding the costs of seed and rent on the ground. The cost per plant in these first test plant nurseries will be rather high because considerable time was consumed in testing different trials, and because replanting was necessary on quite a large scale. Costs of future plantings, however, should be much less. Estimation cost for future operations will be based on the cost of trials that have proven most satisfactory under Chilean conditions.

This report was requested by Elgueta when he learned that Argentina did not accept the possibilities of synthetic rubber as an answer to their rubber demands. With this report, and extracts of reports received from Argentina, Sr. Elgueta hopes to gain additional financial assistance from the Corporacion de Fomento. The effect that this report will have upon the Fomento will largely determine the future, at least for the next few years, of commercial guayule culture in Chile. Articles in TIME magazine and daily newspapers in Chile, have greatly influenced the attitude of the financiers in Chile.

ACTIVITIES PLANNED FOR THE MONTH OF MAY

C O P Y

PROGRESS REPORT

No. 4

GUAYULE NURSERY CULTURE IN CHILE.

By: F. A. White June 5, 1943
Agent (Asst. Agronomist)

GUAYULE NURSERIES IN CHILE

Progress in the field during the month of May has been very slow, due to the lack of labor. The staff at Maipu was limited to 6 workers during most of the month, and now has been reduced to five, including two girls and two men transplanting, and the foreman who has been irrigating the replants. Weeding has been confined to the beds that are to be maintained in the nursery until next winter, June 1944. The two light rains of the season have supplied sufficient moisture for all except the transplants.

With this crew, some 6 thousand plants from the Paine nursery were transplanted to Maipu. In addition to this, about 40 thousand seedlings in the Maipu nursery have been transplanted from sparce to more concentrated beds. Past experience has emphasized the necessity of keeping the crew small, in the absence of a trained agronomist from the Chilean Ministry of Agriculture to direct operations. All of the plants that have been transplanted up to date are in fine shape, as can be seen from the photographs accompanying this report. None of these plants have been lost, and those that were transplanted during the first days of May are putting forth new leaves.

Sr. Elgueta, at a meeting held on June 1, made known that negotiations are under way and necessary arrangements are being made to establish trial field plantings on non-irrigated land. Five regions that differ in climate or soil, or in both, have been selected in the central valley, and the Chilean cooperators are making the necessary arrangements with landowners of these regions to set up trial field plantings. Establishmnt of these field trials, because of they are to be located o n non-irrigated ground, has been delayed by the lack of rainfall.

Field activities of the past month can best be explained by the following photographs:

No. 1 - Two workmen using a "T" shaped, pointed iron rod to prepare holes 12 inches deep and from 1" to 1-1/2" in diameter, in which the seedlings are to be transplanted.

No. 2 - A view of the girls planting small seedlings that have been taken from beds with sporadic stands. At the left, recently irrigated beds in which transplanting has been completed.

No. 3 - A close up of planting operations.

No. 4 - Showing the manner in which the soil is firmed around the small seedling. This procedure is the same that is employed in California citrus nurseries. The plant is placed in the hole made by one of the two workers shown in photo No. 1, then the soil is gently pushed in around the roots by inserting the "T" rod in the soil perpendicular to the ground at the border of the hole, and pushing downward. The rod should not be slanted during this operation. The roots are straightened by a slight upward movement of the plant after the soil is in contact with the roots and before the soil is firmed about them. The final firming of the soil around the roots is shown in photo No. 5. Plants are kept wrapped in a damp cloth from the time they are extracted until they are planted. Note the package of plants at the left of the girl, in the right-hand foreground of the photo.

Progress in the field during the month of May has been very slow, due to the lack of labor. The staff at Maipu was limited to 6 workers during most of the month, and now has been reduced to five, including two girls and two men transplanting, and the foreman who has been irrigating the replants. Weeding has been confined to the beds that are to be maintained in the nursery until next winter, June 1944. The two light rains of the season have supplied sufficient moisture for all except the transplants.

With this crew, some 6 thousand plants from the Paine nursery were transplanted to Maipu. In addition to this, about 40 thousand seedlings in the Maipu nursery have been transplanted from spares to more concentrated beds. Past experience has emphasized the necessity of keeping the crew small, in the absence of a trained agronomist from the Chilean Ministry of Agriculture to direct operations. All of the plants that have been transplanted up to date are in fine shape, as can be seen from the photographs accompanying this report. None of these plants have been lost, and those that were transplanted during the first days of May are putting forth new leaves.

Mr. Higuera, at a meeting held on June 1, made known that negotiations are under way and necessary arrangements are being made to establish trial field plantings on non-irrigated land. Five regions that differ in climate or soil, or in both, have been selected in the central valley, and the Chilean cooperators are making the necessary arrangements with landowners of these regions to set up trial field plantings. Establishment of these field trials, because as they are to be located o n non-irrigated ground, has been delayed by the lack of rainfall.

Field activities of the past month can best be explained by the following photographs:

No. 1 - Two workmen using a "T" shaped, pointed iron rod to prepare holes 12 inches deep and from 1" to 1-1\2" in diameter, in which the seedlings are to be transplanted.

No. 2 - A view of the girls planting small seedlings that have been taken from beds with sporadic stands. At the left, recently irrigated beds in which transplanting has been completed.

No. 3 - A close up of planting operations.

No. 4 - Showing the manner in which the soil is firmed around the small seedling. This procedure is the same that is employed in California citrus nurseries. The plant is placed in the hole made by one of the two workers shown in photo No. 1, then the soil is gently punched in around the roots by inserting the "T" rod in the soil perpendicular to the ground at the border of the hole, and pushing downward. The rod should not be slanted during this operation. The roots are straightened by a slight upward movement of the plant after the soil is in contact with the roots and before the soil is firmed about them. The final firming of the soil around the roots is shown in photo No. 5. Plants are kept wrapped in a damp cloth from the time they are extracted until they are planted. Note the package of plants at the left of the girl, in the right-hand foreground of the photo.

No. 5 - Soil is firmed around the roots by moving the rod toward the plant, as shown in this photo. In this manner all of the roots will be in solid contact with soil particles.

No. 6 - Irrigation which follows immediately after the soil is firmed around the roots, is done with a hand sprinkler.

No. 7 - Flood irrigation follows after planting in the parcella has been completed. Deep penetration is essential; a continuous stream of water, which is regulated so as to not erode the soil, is applied for from 2 to 2-1/2 hours. Depth of penetration is tested from time to time and when it reaches 12 inches below the surface the water is cut off.

Nos. 8 and 9. - These are views of a part of the 80 thousand plants that have already been arranged in the beds, and are to be maintained under irrigation during the summer 1943-44 for seed production. When this operation is completed there will be between 150 and 200 thousand plants in beds such as those shown in these photos. Unless additional help is employed, this work will occupy most of this winter.

No. 5 - Soil is firmed around the roots by moving the rod toward the plant, as shown in this photo. In this manner all of the roots will be in solid contact with soil particles.

No. 6 - Irrigation which follows immediately after the soil is firmed around the roots, is done with a hand sprinkler.

No. 7 - Flood irrigation follows after planting in the parcells has been completed. Deep penetration is essential; a continuous stream of water, which is regulated so as to not erode the soil, is applied for from 2 to 2-1/2 hours. Depth of penetration is tested from time to time and when it reaches 12 inches below the surface the water is cut off.

Nos. 8 and 9. - These are views of a part of the 80 thousand plants that have already been arranged in the beds, and are to be maintained under irrigation during the summer 1943-44 for seed production. When this operation is completed there will be between 150 and 200 thousand plants in beds such as those shown in these photos. Unless additional help is employed, this work will occupy most of this winter.
